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ABSTRACT

Programs in New Orleans, Louisiana, St. Paul, Minnesota, and Seattle, Washington are subjects of the report on efforts to identify components necessary for the development and maintenance of successful postsecondary vocational technical programs for hearing impaired (HI) students. Introductory materials provide a historical perspective on the problems of vocational technical programs for the HI, a review of the literature, and statistical data on the vocational status of HI populations. Descriptions are given of programs at Delgado Junior College, Seattle Community College, and the Technical Vocational Institute. Topics considered include referral procedures, supportive services, curricula, and placement. In addition, programs of study, their duration and associated certificates, degrees or diplomas are charted for each school. Outlines detail the contents of the succeeding five monographs in the series on vocational technical education for the HI. (GW)

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POST SECONDARY PROGRAMS FOR THE DEAF: INTRODUCTION AND OVERVIEW

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Research, Development and Demonstration
Center in Education of Handicapped Children
Minneapolis, Minnesota

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RESEARCH, DEVELOPMENT AND DEMONSTRATION CENTER IN EDUCATION OF HANDICAPPED CHILDREN

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The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children has been established to concentrate on intervention strategies and materials which develop and improve language and communication skills in young handicapped children.

The long term objective of the Center is to improve the language and communication abilities of handicapped children by means of identification of linguistically and potentially linguistically handicapped children, development and evaluation of intervention strategies with young handicapped children and dissemination of findings and products of benefit to young handicapped children.

Acknowledgments

The authors would like to thank the following people at each program who were especially helpful during the research conducted in 1973: Linda Donnels, Peter Wuescher, Douglas Wells, Michael Weldon and Roy Pierce, Delgado Junior College; Stanley Traxler, Alice Burch, Lucy Fridell, William Davis and Steven King, Seattle Community College; Robert Lauritsen, Irene Domorkos, Roger Reddan and John Bachman, St. Paul Technical Vocational Institute; along with all the interpreters, preparatory program teachers, technical vocational teachers, counselors and current students at the various participating programs whose cooperation facilitated complete data collection.

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Finally, this project could not have been undertaken without the cooperation of hundreds of parents, vocational rehabilitation counselors, young deaf people and employers. We hope in return this project will have made a contribution to them by bringing the current occupational status of young deaf people into focus and recommending courses of action designed to elevate their status and permit them to become even more productive members of society.

Foreword

The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children became involved in the evaluation of post-secondary programs in July 1972, several years after the three programs in consideration had been established. The charge to the Center was to develop, in cooperation with the programs in New Orleans, St. Paul, and Seattle, mechanisms by which to identify those components necessary for the development and maintenance of successful post-secondary vocational technical programs for hearing-impaired students.

A special debt of gratitude is owed to the three programs for their willingness to cooperate with an "outside" evaluation team rather than follow the more traditional mode of self-evaluation. We hope that whatever inconvenience the programs may have experienced will be compensated for by the results of the evaluation.

The evaluation was made possible through the cooperation of two federal agencies, the Bureau of Education of the Handicapped (BEH) and Social and Rehabilitation Services (SRS). We gratefully acknowledge the support and advice of Max Mueller of BEH and Edna Adler and Deno Reed of SRS. Of primary importance, of course, has been the interest and support of Boyce Williams, Chief of the Department of Communication Disorders at SRS. The author was a very junior major investigator in 1964 on a project evaluating the economic status of young deaf adults in New England. That project was conducted through the initiation of Dr. Williams and he has continued to exert his leadership touching

many aspects of the lives of deaf individuals. It is safe to say that without his efforts the substantial gains made in vocational technical training for the deaf would have been of a more limited nature.

Finally, my heartfelt appreciation to my colleagues, Steve Fisher and Mary Jane Harlow for their patience, forebearance and initiative. Their work in collecting and analyzing data, traveling to the various programs, setting up and running a conference in the summer of 1973, and the writing up of the findings has been above and beyond the call of duty. As the plans for final dissemination evolved from a relatively concise single report to a series of several monographs their flexibility and capacity for work were equal to the sometimes unreasonable demands placed upon them and their time.

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INTRODUCTION

Background and Statement of the Problem

Since the establishment of programs for the deaf more than 150 years ago, the provision of vocational training has been perceived as one of the major components in the education of deaf children. Historically, schools for the deaf organized their programs to provide terminal vocational skills to the majority of students. Usually, an increasing amount of a student's day was devoted to vocational training as he progressed through secondary school until, in his last few years in school, a relatively small proportion of time was spent in academic subjects.

As the United States evolved from a rural agrarian to an urban/suburban industrial society, the type of training provided by the schools could no longer meet the increasingly technical demands of the working world. What had once been adequate vocational preparation could only be considered prevocational in nature. As a result, deaf individuals fell from general economic parity with the hearing population in the nineteenth century to a position of economic inferiority in the mid-twentieth century.

Except for Gallaudet College, a liberal arts college for the deaf established in 1865, no post-secondary programs for the deaf were available prior to World War II. The situation remained unchanged until the middle 1960's, with a few notable exceptions such as the successful Riverside, California program which was established through the cooperation of the Riverside School for the Deaf and

Riverside Community College. In 1966, the Rochester (New York) Institute of Technology was chosen as the sponsoring institution of the federally funded National Technical Institute for the Deaf (NTID). NTID was established to provide professional training programs in science and technology. NTID was the first post-secondary technical program for the deaf and represented a departure from traditional patterns of education in that deaf students were educated on a college campus planned primarily for students with normal hearing.

The establishment of NTID was followed by the provision of federal support for three model post-secondary vocational technical programs for the deaf. Again, these programs have been established in facilities originally developed for students with normal hearing. The programs are:

1) Delgado Junior College, New Orleans, Louisiana;
2) Seattle Community College, Seattle, Washington;
3) Technical Vocational Institute, St. Paul, Minnesota.

Since the commission of NTID, more than 25 post-secondary programs for the deaf have been developed (Stuckless and Delgado, 1973). Most, but not all, have been supported by funds for vocational education at the state level which have been specifically designated for use with the handicapped. The programs are housed in a variety of settings, including junior colleges, community colleges, vocational schools, state colleges and, in one case, a state university. Without exception, the programs are part of previously established facilities designed for hearing students.

The proliferation of programs has proceeded in an unsystematic way. Given the absence of standards, guidelines and established procedures, it may be assumed that there is a wide range in the extent and quality of services provided. Using the three above-mentioned federally supported programs, the present study was designed with the following objectives:

1) To provide developing post-secondary programs with guidelines for establishing programs for the deaf.

2) To determine as precisely as possible the nature of the three demonstration projects in relation to:

   a) Population served
   b) Courses of study offered
   c) Supportive services provided
   d) Cost of services

3) To determine the effectiveness of the type of post-secondary programming offered by the three demonstration programs in:

   a) Course success
   b) Employment success
   c) Attrition
   d) Comparison of student and non-student success

4) To consider student characteristics in an attempt to derive implications for specific instructional-vocational procedures.

The objectives may be seen as encompassing two components. The first deals with the three existing federally funded demonstration programs. Formative process evaluation was conducted as a means of increasing the effectiveness of ongoing programs. The final outcome of the project, based on the summative evaluation of the demonstration programs, is concerned with establishing guidelines for new programs.

Review of the Literature

Contemporary concerns involving technical-vocational education of the deaf were anticipated by the expressed dissatisfaction of

nineteenth-century educators. Speaking at a meeting of the Eleventh Convention of Instructors of the Deaf in 1886, F. D. Clarke declared:

> The high honor of establishing the first schools in the country where any persistent attempt was made to teach trades belongs to the institution of the deaf. But, though we began first, I hardly think we are keeping abreast of those who started later in the race.

A review of topics in the American Annals of the Deaf over its 120 years of existence provides ample evidence of the importance with which educators of the deaf have considered vocational training. Wilkinson (1885) recommended the establishment of mechanic arts schools to train deaf students from ages 12 to 19. Even the idea of post-secondary technical training for the deaf was first expressed in the nineteenth century. Arguing that deaf students require more special preparation than the hearing, Rogers (1888) recommended that a national polytechnic institute for the deaf be established to provide the vocational preparation which could not be supplied by individual schools for the deaf. Several nineteenth-century educators also supported the expansion of Gallaudet to provide technical as well as liberal arts education. Representing a committee on technical education, Fay (1893) recommended that a technical department, equivalent to liberal arts, be established at Gallaudet College, then known as the National Deaf Mute College. Fay's recommendations were later echoed by Morrison (1920) who advocated the addition of industrial training to the basically liberal arts program at Gallaudet College. Morrison urged:

> Add to the National College for the Deaf more industrial teaching, with the idea of giving more technical training than is possible in the state or other schools. Let it in great measure set the standard of attainment for the deaf along industrial as well as academic and scientific lines (p. 223).

For the residential schools Morrison recommended: a) drop training in obsolete fields, b) emphasize machine skills, c) intensify efforts in a few trades, d) anticipate trades with growing demands, e) foster close cooperation between shop and classroom, and f) provide more attention to placement. Prior to World War II, Barnes (1940a, 1940b) proposed the separation of academic and vocational education of deaf students through the creation of job training centers in urban areas and the establishment of a non-professional National School of Trades, Agriculture and Vocational Training for the Deaf for students 18 years of age and older.

In 1871, the American Annals of the Deaf (Fay) first reported 6 vocations taught in schools for the deaf. The number of trades taught in each of the 34 schools ranged from zero to seven. The trades are presented in Table 1.

Table 1

Trades Taught in Schools for the Deaf in 1875

Bookbinding	Gardening
Broom Making	Glazing
Cabinet Making	Horticulture
Cane Work	Painting
Carpentering	Printing
Coopery	Shoemaking
Farming	Tailoring
	Wood Turning

Immediately prior to the establishment of post-secondary vocational technical programs, the 1964 Annals (Doctor) reported that a total of 36 vocations were taught in 67 residential schools. The vocations and number of schools in which they were taught is presented in Table 2.

Table 2

Vocations Taught in 67 Residential Schools for the Deaf, 1963-64

Vocation	No. of Schools
Agricultural	3
Commercial	47
Clothing & Related Arts	60
Foods & Related Sciences	60
Barbering	10
Commercial Art	10
Cosmetology	20
Drafting	23
Laundering	21
Leatherwork	29
Masonry	4
Metal Work	17
Painting & Decorating	1
Photo Engraving	1
Power Machine Operation	26
Sign Painting & Lettering	3
Library Management	5
Photography	15
Driver Training	26
Auto Mechanics	10
Baking	17
Cleaning & Pressing	18
Dressmaking	43
Electrical Servicing	3
Graphic Arts	46
Ironing	21
Welding	2
Tailoring	8
Upholstering	27
Woodworking	61
Shoe Repairing	6
Horticulture	3
Offset Printing, Printing, Lithograph, Linotype	12
Arts & Crafts, Fine Arts	6
Janitorial	1
Clock Repair	1

The list of occupations reported in Table 2 serves to illustrate the restricted training options available to a deaf high school student of a decade ago.

Investigations of the Vocational Status of the Deaf

The results of the first study conducted on the vocational status of the deaf concerned the employment of 422 graduates of the American Asylum for the Deaf. In the school's Seventieth Annual Report, Superintendent J. Williams in 1886 reported that over 50% of the 368 employed men were clustered in seven occupations; 70 farmers, 27 shoe factory operators, 21 mill operators, 20 shoemakers, 20 mechanics, 17 carpenters and 15 teachers. Of the 54 employed women, 27 were mill operators. One graduate was listed as a Capitalist. It was noted that he had established his own insurance company. It had flourished and he continued as the major shareholder. Another graduate was a successful patent lawyer. The graduates also included three ordained clergymen and an artist. Of particular interest in the report was Williams' statement that the wages of the 422 employed men and women were consistent with general wages in New England. It appears, then, that in the late nineteenth century, despite previously noted concerns, schools for the deaf could provide effective vocational training.

Robinson, Park and Axling (1904) reported responses of 14 employers of 64 deaf workers to questionnaires on the industrial status of the deaf. The deaf individuals were considered good workers. Difficulties of communication presented the major problem. Consistent with Williams' report, it was found that the deaf invariably received the same wages as the hearing for the same class of work.

Fusfeld (1926) examined the vocational training offered in 29 schools for the deaf and the occupations of graduates. Printing, carpentry, farming, shoe repairing and dressmaking were the most commonly reported occupations. Evidence from the schools' reports suggested that approximately 50% of the graduates entered occupations for which they were trained. One school reported cooperation with local and state rehabilitation agencies in placement and only two schools employed placement workers.

Lunde and Bigman (1959) in a questionnaire sample of more than 10,000 deaf men and women reported that among the men 10% reported no training, 40% received training in the printing trades, 20% in carpentry, 15% in shoemaking, 10% in woodworking, cabinet making, and baking, and 5% in other areas. For the women 15% had been taught clerical skills while others had sewing, cooking and domestic science. Major areas of employment were printing, tailoring, and shoemaking. Lunde and Bigman reported a median income of $3,465, well above the national median of $2,818. The discrepancy in favor of the deaf was attributed to the nonrepresentativeness of the samples. Minorities, women, the very young and the very old -- groups which traditionally have faced economic discrimination -- were all underrepresented.

Rosenstein and Lerman (1963) investigated the vocational status of 121 women graduates of the Lexington School for the Deaf in New York City. In relation to their present positions, 25% responded that no specific skills were required, 12% indicated their necessary training had been received at the Lexington School, 15% indicated other schools, 10% had received on the job training, and 36% had acquired their skills in similar previous jobs. (Percentages do not add up

to 100 because of rounding.)

Impetus for establishment of post-secondary programs for the hearing-impaired was provided with the publication of a study by Boatner, Stuckless and Moores (1964) on the occupational status of young deaf adults in New England. The results were interpreted as demonstrating the need for regional, post-secondary, technical-vocational training centers. Among its major findings were:

1. Young deaf adults were underemployed; the majority were engaged in semi-skilled or unskilled positions.
2. The wages of young deaf adults were 22% below those of their hearing siblings.
3. Training provided by the programs for the deaf in New England was, in reality, pre-vocational training and did not provide the students with necessary competitive skills.
4. The unemployment rate of 20% was approximately four times that of the New England region.
5. Of 840 specific occupations rated as to necessary aptitude levels, 753 were seen as suitable for one or more students. Among the general fields were:

library science	artistic arranging
managerial, industrial	quantity cooking
routine recording	bench work
mechanical repair	electrical repair
complex machine operation	structural crafts
typing, stenographic	graphic arts
food serving	inspecting and testing

6. Deafness itself precluded relatively few skilled occupations. However, most of the positions were not available to deaf students because they lacked appropriate training.

7. Deaf students and young deaf adults received insufficient vocational counseling and placement services. Friends and relatives helped in obtaining jobs in 59% of the cases.

8. Immediate supervisors of 95% of the employed adults rated them average or better in job performance.

9. The greatest problem noted by supervisors related to difficulties of communication.

10. More than 90 percent of the parents of current and former students of schools for the deaf and 73% of the young deaf adults approved of the concept of regional technical-vocational centers at the post-secondary level.

These results, the authors concluded, supported the position that vocational education for the deaf could best be conducted for most deaf students on a regional basis, under a faculty of vocational educators specially prepared to provide instruction and ancillary services to the deaf.

The study was replicated in seven southern and southwestern states by Kronenberg and Blake (1966). The purpose was the same as that of the New England study, to assess the occupational status and opportunities for young deaf adults. The results, essentially similar, also supported the concept of post-school employment preparation programs. The authors reported:

1. The rates of unemployment, occupation level, wage, and opportunities for advancement for the deaf, when compared to the same age group of the general U.S. adult population, are inferior.

2. Employed young deaf adults performed well in their jobs, as evidenced by the favorable reports of most supervisors regarding job performance, willingness to have one or more deaf subordinates, and willingness to advance them if further training were received.

3. The vocational preparation resources for the deaf are somewhat limited.

4. The opportunities for young deaf adults to advance under their present employment situations were limited. In spite of their employer's ratings of "average" or "above average" in the performance of their jobs, only a few of the employed young deaf adults could advance beyond their present occupational levels without re-training and/or relocation.

5. The need for updating and upgrading vocational training and ancillary services for young deaf adults appeared long overdue.

6. A majority of current students, former students, and parents perceived a need for post-school training and indicated support for such programs if the opportunity were available. A majority of parents preferred that post-school training for young deaf adults be provided in a facility for hearing students where modifications, including additional staff, would be introduced to serve deaf trainees. Approximately 40% of the young deaf adults had a preference to be trained with deaf peers.

Since post-secondary programs for the hearing impaired have only recently come into existence, research literature concerning the students and quality of such programs is sparse. Craig, Newman and Burrows (1972) discussed the characteristics of the deaf students in the three model post-secondary programs under study in the present investigation in order to draw a composite profile. They reported:

1. The students tend to come from states closest to the regional program; to come from a variety of high school backgrounds though most frequently from residential schools; and to have brought with them the handicaps imposed by being deaf throughout most of their lives.

2. The students enroll in a wide range of courses, though more than half of them follow career lines in office practices and graphic arts, and data processing. The selection of vocational areas, however, appeared to the authors to be unnecessarily constricted.

3. Two-thirds of the students who left before graduation, left by individual choice. Through counseling and career guidance, an increased number of these cases might be reduced. Test scores taken from the evaluation reports would strongly suggest that deaf students should succeed in schools which provide special tutoring and supportive services.

PROGRAM DESCRIPTIONS

Delgado Junior College

Delgado Junior College functions under the authority of the Louisiana State Board of Education and accomodates approximately 7,000 students in day, evening and special extension classes. The Junior College emphasizes technical/vocational education, although a few non-technical electives, such as Child Development, are offered; there are 49 areas of instruction from which to choose. The college is contained on a campus located north of downtown New Orleans and provides access to workshops, classrooms, library, cafeteria, media center, bookstore, and health facilities. There are no housing facilities on campus.

The Delgado Program for the Deaf is housed in two satellite buildings in the center of the campus. The Deaf Program student enrollment is approximately 75 per annum. At any one time it is somewhat less. The per pupil tuition for 1973-74 was $110 per semester for state residents and $210 per semester for non-residents. The stated goals of the Program for the Deaf are: 1) to integrate the deaf student within the hearing school and community and 2) to provide the student the necessary skills to obtain employment at the end of training. The expectations for graduates and non-graduates of the program are similar: to obtain employment and to be able to produce and get along with other employees on the job.

The methods by which the program becomes known to the public are varied: Program brochures are sent to identified sources, staff members personally visit residential schools for the deaf within

Delgado's regional area, contacts are maintained with Vocational Rehabilitation Agencies, the program is reported in various journals and other publications and the program has been advertised in the New Orleans news media (television presentations and newspaper feature articles).

Those eligible for Delgado's Program must be referred by their respective state Vocational Rehabilitation Agency and must have hearing losses which may hinder them from functioning adequately in regular post-secondary programs. A high school diploma is not a requirement for admission into the program. However, a student must show the potential to succeed at Delgado. The program also requires that the entering student has normal intelligence, as measured by the WAIS and Beta IQ tests, and that he exhibit proper social behavior. No test is administered to assess the latter. In addition, the applicant must be free of other severe physical and mental handicaps.

The majority of student financial support comes from Vocational Rehabilitation, although some students apply for NDEA (National Defense Education Act) loans, receive family support or participate in work-study programs.

Supportive services available to the deaf and hard of hearing students include special classes, remedial instruction, counseling, interpreting, manual communication training, health services, speech therapy and otological examination. Although the school does not provide living accommodations, the Deaf Program Staff assists deaf students in locating housing by providing the students with a public and private housing guide. Published by the Deaf Program, the housing guide lists acceptable accommodations, prohibits living inside of a specified area

(French Quarter) of the city and requires that the student discuss his housing wants with his assigned counselor prior to renting, signing a lease or moving.

Once a student is admitted to the Program, he is assigned to one of two Program Counselors who works with the student on an "as needed basis" in personal and vocational counseling for the duration of the student's stay at Delgado. Each counselor is proficient in the use of Total Communication, a mode of communication that exercises the simultaneous use of speech and speech reading, sign language, fingerspelling and body language.

The majority of students entering the program are advised first to enroll full-time in the Preparatory Program; the remaining students are advised to either enroll in (1) a full-time Vocational Trades or academic degree program or (2) a part-time training program with special courses in the Preparatory Program. The students in the full-time Preparatory Program are in self-contained classes with other deaf students for the duration of one school semester (16 weeks). The Preparatory Program is designed to prepare deaf students academically and vocationally for an education with the hearing students at Delgado via courses in Occupational Information, Survey of Vocational Interests, Personal Management, Preparatory Math, Preparatory English, and Communication Skills. The courses are taught by teachers who are proficient in the use of Total Communication. In addition, the Preparatory Program is designed to facilitate student adjustment and preparedness for job acquisition.

When the students have completed the Preparatory Program, the Deaf Program Staff hold a "staffing" where an evaluation of student

progress, student test scores, student interest, student Preparatory Program performance, and staff opinion is made to determine student placement within a technical vocational training area. According to the Program Administrator, the program evaluation of a student's test scores overrides the student's stated interest.

Once a placement decision is made, each student is enrolled in the technical vocational training area recommended by the members of the Deaf Program Staff. As regular students, deaf students receive their training in the same workshops and classrooms as Delgado's hearing students. The interpreter support service facilitates student-teacher/teacher-student and student-student communication, with a goal of promoting understanding and fostering integration. The majority of deaf students spend from 5 to 18 months in training depending on adjustment to the environment, course rigorousness, individual needs, previous education, and ability to make progress. Students successfully completing a course of study graduate from Delgado leading them to one of three levels of achievement: 1) an Associate in Science or an Associate in Arts degree is awarded to those having technical as well as all-around knowledge of a highly skilled occupation, 2) a diploma is awarded to those having a well-rounded knowledge of a particular trade, and 3) a certificate is awarded to those employable in a trade but having limited duties.

Administrator interview data suggest that extensive Deaf Program services are available to graduating students in locating suitable employment. However, student interview data indicate that assistance in locating employment comes mainly from friends in places of employment and friends at school.

Table 3

DELGADO JUNIOR COLLEGE: Programs of Study,

Their Duration, and Degrees, Certificates, or Diplomas Awarded

Programs of Study	Semesters	Degree, Certificate, or Diploma
I. Allied Health Occupation Division		
A. Occupational Safety and Health	4	Associate Degree
B. Orthotics Prosthetics	2	Certificate
II. Business Studies Division		
A. Cooperative Med. Management Program	4	Associate Degree
B. Data Processing	4	Associate Degree
C. General Business Programs		
1. Business Administration	4	Associate Degree
2. Business Training	2	Certificate
3. Secretarial Studies	4	Associate Degree
4. Clerical	2	Certificate
III. Engineering and Industrial Technology Division		
A. Aerospace Engineering Technology	4	Associate Degree
B. Aircraft Maintenance Technology	7	Associate Degree & Certificate
C. Powerplant Maintenance Technology		Certificate
D. Combined Airframe and Powerplant Maintenance Tech.		Certificate
E. Architectural Engineering Tech.	4	Associate Degree
F. Civil Engineering Tech.	4	Associate Degree
G. Electrical Engineering Tech.		Associate Degree
1. Electrical Power	4	Associate Degree
2. Electronics	4	Associate Degree
3. Instrumentation	4	Associate Degree
H. Engineering Graphics	4	Associate Degree
I. Radio-Television Servicing	4	Diploma
J. Fire Protection Technology	4	Associate Degree
K. Industrial Engineering Tech. Options		
1. Materials Handling and Plant Layout	4	Associate Degree
2. Production	4	Associate Degree
3. Safety		
L. Mechanical Engineering Tech. Options		
1. Air Conditioning Servicing	4	Associate Degree
2. Heating and Ventilation Systems	4	Associate Degree
3. Mechanical Engineering	4	Associate Degree
M. Petroleum Engineering Tech.	4	Associate Degree
IV. General Studies Division		
A. Computer Science	4	Associate Degree
B. Fine Arts	4	Associate Degree
C. General Arts	4	Associate Degree
D. Horticulture	4	Associate Degree &
	2	Certificate
E. Law Enforcement	4	Associate Degree
F. Library Service	4	Associate Degree
G. General Science	4	Associate Degree
H. Music		

Programs of Study	Semesters	Degree Certificate or Diploma
V. Vocational Trades Division		
A. Cabinet Making	4	Diploma
B. Carpentry	4	Diploma
C. Culinary Arts and Food	4	Diploma
D. Electrical Construction	4	Diploma
E. Machinist	4	Diploma
F. Metal Fabrication	4	Diploma
G. Motor Vehicle Technology	4	Diploma & Assoc.D.
H. Motor Vehicle Body & Fender Repair	2	Certificate
I. Painting and Decorating	4	Diploma
J. Plumbing	4	Diploma
K. Visual Communication		
1. Commercial Art	4	Diploma & Associate Degree
2. Advertising Art	4	Diploma & Associate Degree
3. Graphic Arts Management and Printing Tech.		
a. Management	4	Diploma & Associate Degree
b. Printing Technology - Presswork	4	Diploma & Associate Degree
c. Printing Technology - Composition	4	Diploma & Associate Degree
L. Welding		Diploma

Seattle Community College

The Seattle Community College (SCC) District is a part of the Washington State System of Community Colleges and includes Seattle Central, South Seattle and North Seattle Community Colleges. The three major campuses are located within a 6- mile radius in the Seattle metropolitan area. Each of the three campuses of Seattle Community College is organized to offer programs of study in three major areas: (1) a program of Applied Arts and Sciences which provides vocational and technical education, (2) a program of Liberal Studies which provides up to 2 years of general, liberal collegiate education and which may be transferable to a baccalaureate institution, and (3) a program of Community Service Education which includes programs in basic education skills. Seattle Community College offers a curriculum of developmental programs and 75 vocational/technical majors from which to choose. Facilities such as media centers, cafeterias, libraries, bookstores, first aid centers, workshops, classrooms, and dormitory facilities are either available on each campus or accessible from each campus.

The Seattle Community College Program for the Deaf has its offices located in the Seattle Central Community College Campus, though deaf students may attend classes at any one of the three campuses. The program serves approximately 100 deaf and hard of hearing students a year at a per pupil cost of either $1,575 or $2,007 per year depending on student resident status. The yearly costs include tuition, fees, books and supplies, and dormitory facilities. The expressed goal of the Seattle Program for the Deaf

is to provide the deaf with the same access to educational opportunities as other people have, thereby fostering their survival in the mainstream of society. The expectations for graduates from the program are to (1) define their own life objectives and (2) be able to accomplish these objectives. The expectation for non-graduates from the program is to be able to use other services available to them better than they can use those at Seattle Community College.

The methods by which students are recruited for the Program are varied: a comprehensive brochure on the program is sent to identified sources, papers are presented at major deaf organizational meetings, staff members give talks to groups nationwide, the program is reported in various literature, the Program Counselors maintain contacts with referring agents (Vocational Rehabilitation Counselors), newspapers and magazines have published feature articles about the program, and staff members have made presentations on television shows. The Seattle Program for the Deaf was instrumental in getting interpreters on daily news programs.

Those eligible for Seattle's program include deaf or profoundly hard of hearing people who meet their respective state's rehabilitation requirements and anyone who, in the opinion of the admissions committee, will benefit from the program.

Students in the program may obtain financial assistance from a number of sources: Department of Vocational Rehabilitation, Public Assistance, Work Study, Community Jobs (part-time), College Scholarships, College Loans, Deaf Department Loans, Department

Scholarships, scholarships from other organizations in the metropolitan area, and family.

Supportive services available to the deaf and hard of hearing students at Seattle include interpreting, tutoring, counseling, manual communication training, health facilities, audiological examination, speech therapy and supervised housing. The Program for the deaf utilizes dormitory facilities at Seattle University for all first year students. This arrangement is provided so that the entering student has a "home base" where evening counseling, recreation and club activities are available, thereby supporting the student's initial adjustment to college life. Deaf student organizations, the Sea King Club and the Student Body Government, provide social activities and are involved in policy decisions of the program.

Once a student is admitted to the program, he is assigned to one of three Program Counselors who works with the student for the duration of the student's stay at Seattle Community College. Each counselor is proficient in the use of Total Communication and has training in personal and vocational counseling.

Most deaf students entering Seattle Community College begin their college experience in a "Prep" program, and are in self-contained classes with other deaf students for one school quarter (12 weeks). The "Prep" program is a three phase process enabling each student to self-actualize his interests, likes, abilities and long range goals so that he may select a career training program. The students learn about themselves and their environment and the relationship between the two via special classes and counseling

services. Under the guidance of teachers, counselors and tutors the student progresses through the following phases: (I) Evaluation and Information Gathering Activities-- During the first two weeks of "Prep," the student evaluates himself utilizing his profile based on testing and experiences, and gathers information regarding each of the 75 vocational areas by attending one hour lectures given by college instructors in their respective areas of specialization. In addition, classes in remedial reading, language and math, and a general college orientation are initiated. (II) Job Sampling and Career Assessment-- Following the general presentations on each of the 75 areas of instruction in Phase I, the student selects those areas in which he is most interested and receives in-depth, hands-on experience in these areas. This provides the student an assessment and identification of the career training areas most compatible with his wants, abilities and goals. (III) Decision Making and Preparation for Vocational Training-- Based on information gathered in the previous phases, the student decides which training program is the most self-fulfilling. Once this decision is made, the student, with the help of "Prep" teachers, sets up an individualized program which can best prepare him for entry into his chosen area of training and identifies special support services that will give the student equal access to his vocation. At the conclusion of this process the student is usually ready to enter his chosen field.

Once the student has completed the "Prep" process and has chosen his area of study, he enters the training program of his choice.

As a regular student, the deaf student receives his training in the same workshops and classrooms as Seattle's hearing students. As in the other programs, the interpreter support service is designed to facilitate student-teacher/teacher-student and student-student communication, which promotes understanding and fosters integration. The vocational technical programs vary in length from two to eight quarters and lead to certificates, diplomas, or Associate of Applied Science degrees upon completion. A deaf student successfully completing a course of study is then assisted by his Program Counselor and/or vocational instructor in locating suitable employment. After the student's counselor calls the prospective place of employment to set up an interview, the student goes for his interview on his own or with an interpreter, if he requests. Once a student has obtained employment, the Program will supply an interpreter, upon student request, for up to 20 hours of interpreter service for the first few weeks of employment at the Program's cost. Employment-Program interaction continues to exist only if the former student experiences problems on the job.

Table 4

SEATTLE COMMUNITY COLLEGE: Programs of Study,

Their Duration and Degrees, Certificates or Diplomas Awarded

Programs of Study	Seattle Central Community College	North Seattle Community College	South Seattle Community College	Quarters	Degree, Certificate or Diploma
I. Adult High School	X	X	X		
II. Americanization and Naturalization	X	X	X		
III. Basic Education (G.E.D.)	X	X	X		
IV. College Exploratory	X	X	X		
V. Community Service Education	X	X	X		
VI. English as a Second Language	X	X	X		
VII. Liberal Studies	X	X	X		
1. Accounting	X	X	X	6	A.A. **
2. Anthropology	X	X	X	6	A.A. **
3. Art	X	X	X	6	A.A. **
4. Astronomy	X	X	X	6	A.A. **
5. Biology	X	X	X	6	A.A. **
6. Botany	X		X	6	A.A. **
7. Business	X	X	X	6	A.A. **
8. Chemistry	X	X	X	6	A.A. **
9. Drama	X	X	X	6	A.A. **
10. Economics	X	X	X	6	A.A. **
11. Engineering	X		X	6	A.A. **
12. English	X	X	X	6	A.A. **
13. Environmental Science	X	X	X	6	A.A. **
14. French	X	X	X	6	A.A. **
15. Geography	X	X	X	6	A.A. **
16. Geology	X	X	X	6	A.A. **
17. German	X	X	X	6	A.A. **
18. Health	X	X	X	6	A.A. **
19. History	X	X	X	6	A.A. **
20. Journalism	X		X	6	A.A. **
21. Library	X		X	6	A.A. **
22. Mathematics	X	X	X	6	A.A. **
23. Music	X	X	X	6	A.A. **
24. Oceanography	X	X	X	6	A.A. **
25. Philosophy	X	X	X	6	A.A. **
26. Physical Education	X		X	6	A.A. **
27. Physics	X	X	X	6	A.A. **

** - Associate of Arts

					24	
28.	Political Science	X	X	X	6	A.A. **
29.	Psychology	X	X	X	6	A.A. **
30.	Recreation	X			6	A.A. **
31.	Science	X	X	X	6	A.A. **
32.	Social Science	X	X	X	6	A.A. **
33.	Sociology	X	X	X	6	A.A. **
34.	Spanish	X	X	X	6	A.A. **
35.	Speech	X	X	X	6	A.A. **
36.	Zoology	X		X	6	A.A. **
VIII.	Occupational Education					
1.	Accounting and Finance					
	A. Bookkeeping	X	X	X	3	Certif.
	B. Business Technology					
	a. Accounting Major	X	X		6	Degree
	b. General Business Major		X		6	Degree
	c. Insurance Management Major		X		6	Degree
	d. Insurance		X		3	Certif.
2.	Aeronautical Technology					
	A. Aviation Maintenance Technology			X	8	A.A.S. *
	B. Airframe Mechanic			X	6	Certif.
	C. Powerplant Mechanic			X	6	Certif.
3.	Allied Health					
	A. Dental Assisting	X			3	Certif.
	B. Dental Laboratory Technology	X			6	Degree
	C. Inhalation Therapy Technician	X			4	Certif.
	D. Medical Assisting		X		6	A.A.S. *
	E. Medical Secretary		X		4	Certif.
	F. Nursing	X			6	A.A.S. *
	G. Practical Nursing	X	X		4	Certif.
	H. Surgical Technician	X			3	Certif.
4.	Applied Photography					
	A. Commerical Photography	X			6	Diploma
	B. General Photography	X			4	Certif.
	C. Technical Photography	X			6	Diploma
5.	Clothing Construction					
	A. Custom Apparel Design and Construction Degree	X			6	Degree
	B. Custom Apparel Design and Construction Certificate	X				Certif.
6.	Commerical Art					
	A. Advertising Art	X			6	Diploma

* - Associate of Applied Science

** - Associate of Arts

7. Cosmetology				25	
A. Cosmetology Degree	X			6	Degree
B. Cosmetology Certificate	X				Certif.
8. Data Processing					
A. Computer Operations	X			3	Certif.
B. Data Processing Technology	X	X		6	Degree
C. Keypunch Operation	X			1	Certif.
9. Domestic Appliance and Vending Machine Repair		X		2	Certif.
10. Drafting					
A. General Drafting	X	X	X	3	Certif.
B. Drafting Technology					
a. Architectural Drafting Major	X		X	6	A.A.S.*
b. Mechanical Drafting Major	X		X	6	A.A.S.*
c. Structural Drafting Major		X		6	A.A.S.*
d. Technical Illustration Major	X			6	A.A.S.*
11. Drycleaning					
A. Cleaning and Spotting	X			2	Certif.
B. Counter Procedures	X			2	Certif.
C. Drycleaning	X			6	Certif.
D. Wool and Silk Finishing	X			2	Certif.
12. Early Childhood Education					
A. Early Childhood Education Certificate	X	X		3	Certif.
B. Early Childhood Education Degree	X	X		6	Degree
13. Electro Mechanical Technology	X			6	A.A.S.*
14. Electronics					
A. Aviation Electronics		X		6	Certif.
B. Communications Electronics		X		6	Certif.
C. Electrical Power Generator		X		6	Certif.
D. Electrical Technology		X		7	Degree
E. Electronics Technology		X			Degree
F. Industrial Electronics		X		6	Certif.
15. Garment Construction and Alterations					
A. Power Sewing	X				Certif.
B. Power Sewing Machine Operation	X			5 wks.	Certif.
C. Tailoring	X			8	Certif.

* - Associate of Applied Science

				26	
16. Horology and Micro-Precision Instrumentation		X		6	Certif.
17. Hospitality and Food Service					
A. Buffet Cooking and Preparation	X				Certif.
B. Cafeteria Food Preparation	X	X		18 wks	Certif.
C. Cake Decorating and Retail Sales	X				Certif.
D. Commercial Baking	X			8	Certif.
E. Commercial Cooking	X			8	Certif.
F. Cook's Preparatory and Dining Room Service	X	X		18 wks.	Certif.
G. Dinner Cooking		X		18 wks.	
H. Hotel and Restaurant Management	X			6	
18. Landscape and Environmental Horticultural					
A. Landscape and Environmental Horticultural Certificate			X	3	Certif.
B. Landscape and Environmental Horticultural Degree			X	6	Degree
19. Marine Engineering Technology	X			6	Degree
20. Metal Fabrication-Machinery					
A. Machine Shop Practice	X			4	Certif.
B. Sheet Metal Practice	X			4	Certif.
C. Welding and Metal Fabrication	X			4	Certif.
21. Motor Vehicle Maintenance Technologies					
A. Motor Vehicle Maintenance Degree			X	6	Degree
B. Automotive Body Rebuilding and Refinishing	X		X	3-6	Certif.
C. Automotive Machinist			X	3-6	Certif.
D. Automotive Mechanic			X	3-6	Certif.
E. Automotive Parts Counterman			X	3-6	Certif.
F. Commercial Driver Training			X	1-2	Certif.
G. Diesel and Heavy Equipment Mechanic			X	3-6	Certif.
H. Material Handling Equipment Mechanic			X	3-6	Certif.
I. Trailer Repair			X	6	Certif.
22. Printing-Offset Lithography and Graphic Communications					
A. Graphic Production	X			6	Diploma
B. In-Plant Duplicating	X			3	Certif.
23. Recreational Technology	X			6	Degree
24. Sales and Distribution					
A. Business Technology Degree: Real Estate Major			X	6	Degree
B. Cashier Checking	X			6 wks.	Certif.

C. Customer Representative	X			6	Degree
D. Real Estate		X		4	Certif.
25. Science and Engineering Technologies					
A. Chemical Technology	X			6	Degree
26. Secretarial Science					
A. Office Clerical Practices	X	X	X	3	Certif.
B. Secretarial	X	X		4	Certif.
C. Secretarial Office Management					
a. Executive Secretary	X	X		6	Degree
b. Stenographic	X		X	3	Certif.
27. Supervision and Management					
A. Supervision and Management Degree			X	6	Degre
B. Supervision and Management Certificate			X	2	Certif.
28. Wood Construction					
A. Cabinet and Millworking	X			4	Certif.
B. Carpentry	X			4	Certif.
C. Marine Carpentry	X			5	Certif.
IX. Occupational Extension and Other Programs					
A. Building Construction Technology	X			6	A.A.S.*
B. Building Maintenance Technology			X		
C. Building Inspection	X			3	Certif.
D. Industrial Safety and First Aid			X	18 hours	
E. Fire Command and Administration		X		6	Degree
F. Fire Protection		X		3	Certif.
G. General Electronics		X		2-3	Certif.
H. Pre-school Parent Cooperative			X		
I. Industrial Technology	X			6	Degree
J. Law Enforcement		X		6	Degree
K. Ophthalmic Dispensing	X			6	Degree
L. Traffic and Transportation		X		4	Certif.

* - Associate of Applied Science

Technical Vocational Institute

The Technical Vocational Institute (TVI), a part of the St. Paul, Minnesota Public School System, enrolls more than 2,300 students in the day school program annually. Continuing Education Evening Classes are also offered, accommodating an additional 17,000 students per year. Scholastic emphasis is on technical/vocational education with 38 areas of instruction from which to choose in the day school program. In addition educational programs are also available in other nearby educational facilities through the Consortium program. The Institute is a self-contained unit providing easy access to workshops, classrooms, cafeteria, gym facilities, media center, library, and health facilities. Like most 2 year post-secondary programs, TVI does not maintain dormitory facilities.

The Technical Vocational Program for the Deaf is housed within the Institute and serves about 100 deaf and hard of hearing students a year at a per pupil cost of approximately $570 per year, not including room and board. The stated goals of the Program for the Deaf are: (1) to provide each student the opportunity to acquire skills which lead to meaningful employment and (2) to offer an environment that fosters social growth serving the personal maturation of each student. The expectations for graduates and non-graduates of the program are to acquire employment on a higher level than they could have obtained without this educational experience and to facilitate vertical movement within the job market incorporating further training.

The methods by which students are recruited for the program are

varied: a program newsletter is sent to identified sources, papers are presented at major deaf organizational meetings, the program is reported in various publications, residential and secondary schools serving the deaf are visited by the TVI staff, and the Program Counselors maintain regular and frequent contacts with referring agents (Vocational Rehabilitation Counselors).

Those eligible for TVI's program must have hearing losses which restrict their chances of success in regular post-secondary programs and should meet their respective state's requirements for Vocational Rehabilitation. In addition, candidates should (1) have a high school diploma; deaf persons without a diploma are considered on a specialized basis, (2) should demonstrate an ability to profit from a technical vocational education; a student who has plateaued academically in the last three years of his secondary education might not be acceptable, and (3) have "reasonable socially acceptable behavior."

The majority of student financial support comes from Vocational Rehabilitation and includes tuition, maintenance and transportation. However, some students receive family support or apply for loans through the extensive loan system at TVI.

Supportive services available to the deaf and hard of hearing TVI students include special classes (Preparatory Program), remedial instruction, manual communication training, counseling, interpreting, placement, specialized media services, health facilities, and weekly speech therapy. The Deaf Program Staff assists deaf students in locating housing in nearby residences, apartments, supervised clubs, the YMCA or the YWCA.

Once a student is admitted to the Program, he is assigned to one of two Program Counselors who works with the student on an "as needed basis" in personal and vocational counseling for the duration of the student's stay at TVI. Each counselor is proficient in communication skills.

The majority of students admitted to the Program for the Deaf first enroll in the Preparatory Program, and are in self-contained classes with other deaf students for the duration of one school quarter (12 weeks). The program offers an opportunity for each deaf student to explore his interests, aptitudes, and abilities via courses in Communications, Mathematics, Personal Management, Occupational Information, Vocational Exploration, and other courses as necessary. The Preparatory Program also provides the student time to adjust to his new environment, adjust to independent living, learn to use the program's supportive services, select his area of study, continue his academic preparedness, and develop a secure peer group identity.

During the Preparatory Program, the TVI Deaf Program Staff holds "staffings" where each student's progress is assessed individually to make appropriate recommendations for student placement within a technical vocational program of study. Measures utilized to evaluate each student for placement include student performance in the Preparatory Program, student performance in previous employment, Rehabilitation Center vocational evaluation, expressed interest of the student, expressed interest of the student's family, and student test scores (General Aptitude Test Battery, Performance Subjects of the Wechsler Adult Intelligence Scale, ITPA Culture Fair Scale 2

Test, Minnesota Paper Form Board, Data Processing Aptitude Test, Stanford Achievement Test, and the GATES Reading Test). According to Program Counselors, test scores are utilized minimally in student placement considerations.

Upon completion of the Preparatory Program, deaf students enroll in the technical vocational training areas agreed upon by the student and his counselor. As regular students, deaf students receive their training in the same workshops and classrooms as TVI's hearing students. Interpreter support service is provided. The majority of deaf students usually spend ten to twenty months in training depending on course content, individual needs, previous education and ability to make progress. Students successfully completing a course of study are awarded diplomas and are then assisted in locating suitable employment. Once a student has obtained employment, the school provides interpreter service to the employer and former student on an as needed basis; this may vary from one day to several weeks. Employment-Program interactions continue to exist only if former students experience problems on the job.

Table 5

TECHNICAL VOCATIONAL INSTITUTE: Programs of Study,

Their Duration and Degrees, Certificates or Diplomas Awarded

Programs of Study	Quarters	Degrees, Certificates or Diplomas Awarded
I. Chemical Technology	6	Diploma
II. Civil and Highway Technology	8	Diploma
III. Construction Drafting	6	Diploma
IV. Design Technology	6	Diploma
V. Electro Mechanical Technology	3	Diploma
VI. Electronic Technology		
1. Instrument Option	4	Diploma
2. Computer Technology Option	4	Diploma
3. Communications Option	5	Diploma
4. Television Option	5	Diploma
VII. Industrial Hydraulics and Pneumatic Technology	3	Diploma
VIII. Apparel Arts	3	Diploma
IX. Auto Body Repair	4	Diploma
X. Auto Mechanics	6	Diploma
XI. Cabinetmaking	6	Diploma
XII. Carpentry	6	Diploma
XIII. Electricity	6	Diploma
XIV. Graphic Arts	5	Diploma
XV. Machine Tool Processes	6	Diploma
XVI. Painting and Decorating	3	Diploma
XVII. Pipefitting	3	Diploma
XVIII. Plumbing	3	Diploma
XIX. Production Art	6	Diploma
XX. Sheet Metal	6	Diploma
XXI. Tool Die and Mold Making Processes	6	Diploma

		Quarters	33 Degrees, Certificates or Diploma Awarded
XXII.	Truck Mechanics	6	Diploma
XXIII.	Watch Making	3	Diploma
XXIV.	Welding	6	Diploma
XXV.	Accounting	4	Diploma
XXVI.	Bookkeeping Clerk	2	Diploma
XXVII.	Data Processing	5	Diploma
XXVIII.	General Office Practice	2	Diploma
XXIX.	Medical Secretary	3	Diploma
XXX.	Legal Secretary	3	Diploma
XXXI.	General Secretary	3	Diploma
XXXII.	Transportation Traffic Training	3	Diploma
XXXIII.	Cosmetology	4	Diploma
XXXIV.	Medical Laboratory Assistant	5	Diploma
XXXV.	Health Assistant Training Program		
	1. Nurse Assistant	4 weeks	Diploma
	2. Health Service Coordinator	4 weeks	Diploma
XXXVI.	Practical Nursing	4	Diploma
XXXVII.	Restaurant and Hotel Cookery	4	Diploma

ORGANIZATION OF MONOGRAPH SERIES

Procedures are spelled out in detail in the appropriate sections. Including the present report, six monographs have been developed and comprise the total package. The monographs are as follows:

I Introduction and Overview
II External Views of Programs
III Internal Views of Programs
IV Empirical Data Analysis
V Follow-up Data Analysis
VI Guidelines

Monograph I: Introduction and Overview.

This report is divided into the following categories:

1. Introduction and Statement of the Problem
2. Review of Literature
3. Program Descriptions
4. Procedures

Monograph II: External Views of Programs.

Material in this monograph is based on results obtained by two sets of interviews and two sets of questionnaires as follows:

1. Interviews of Former Students Now Employed
2. Interviews of Employees' Supervisors
3. Parent Questionnaires
4. Vocational Rehabilitation Counselor Questionnaires

For each category the results are treated separately for each of the three programs (Delgado, Seattle, TVI) as well as on a general basis across programs. The same procedure was followed for all subsequent monographs.

Monograph III: Internal Views of Programs.

Material in this section is based on interviews with the following categories of respondents:

1. Current Students
2. Deaf Program Staff
   a) Administrators
   b) Counselors
   c) Preparatory Program Teachers
   d) Interpreters
3. Technical Vocational Teachers-College training staff.

Monograph IV: Empirical Data Analysis.

Empirical data analysis was conducted on two groups, Former Students and Current Students:

1. Former Students
   a) Stanford Achievement Test
   b) General Aptitude Test Battery
   c) IPAT
   d) Wechsler Adult Intelligence Scale

2. Current Students
   a) Stanford Achievement Test
   b) General Aptitude Test Battery
   c) IPAT
   d) Wechsler Adult Intelligence Scale

Monograph V: Follow-up Data Analysis.

The follow-up data consist of information on former students arranged in the following categories:

1. Areas of Training
2. Former Student Status
   a) Graduates
   b) Goal Completions
   c) Withdrawals
   d) Transfers
3. Job Placement
4. Geographic Origin

Monograph VI: Guidelines and Summary

This monograph provides guidelines for the development and monitoring of effective vocational technical programs for the deaf within ongoing programs for hearing students. A summary of the complete study is also provided.

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